

## PTWS 4000

### 4 Liter Tablet Dissolution Testing Instrument for Pool Test Applications

PTWS 4000 is the only tablet dissolution testing instrument available to support vessel sizes up to 4 liters for pool test applications of highly concentrated samples. PTWS 4000 contains six stirred glass vessels with a volume of approx. 4 liters each in a single row in the front side of the instrument. Furthermore, it offers two additional, unstirred 1 liter vessels to take a blank and/or a reference standard in a second row on the back side of the instrument. PTWS 4000 is fully compliant to the current USP <711/724> and EP <2.9.3/4> pharmacopeia.



**Various Vessel Sizes Usable**

PTWS 4000 can also handle 1 liter and 2 liter USP/EP vessels using the same Monoshaft™ stirring tools. The adapters to use smaller vessels are included in the standard scope of supply. This makes the PTWS 4000 one of the most flexible dissolution testing instruments available.

**Six-in-line**

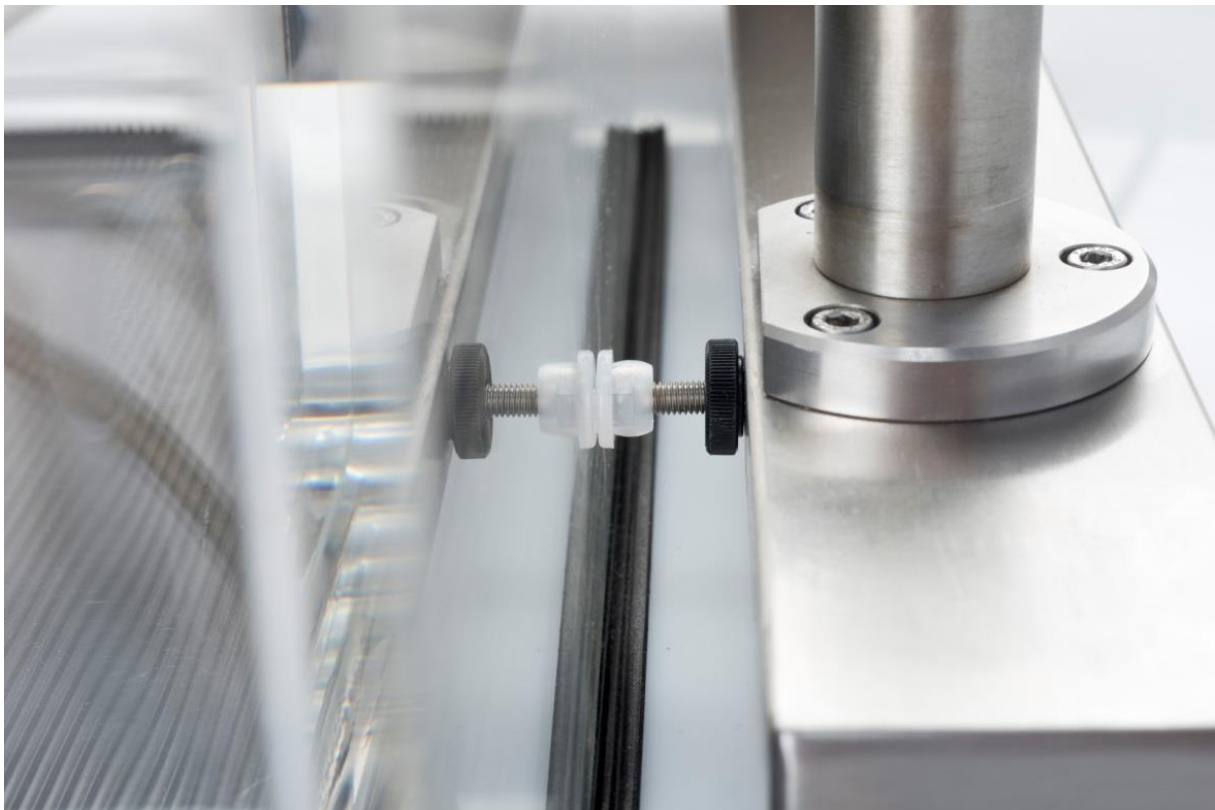
The PTWS 4000 is an ideal instrument for either manual sampling or basic automation. The „six-in-line“ vessel configuration means optimal access to the samples for subsequent analysis. Its automated lift-up system moves the drive head into an upper position to remove the vessels and allows for easy cleaning. The U-shaped water bath is separate from the main frame of the instrument and the built-in circulation pump is mounted on a spring loaded assembly to eliminate the transfer of vibration to the dissolution vessels. The instrument features an RS-232 interface for remote control and data transfer to the PT-DL1 data logger to print information of actual stirrer speed and bath temperature.



Six vessel in a line



The position of the water bath can be adjusted and fixed easily.





### Temperature Sensor

A temperature sensor probe is included to measure the medium temperature directly inside the vessels. Optionally a pH probe can be connected as well.



### Automated Lift Drive

The instrument features an automated lift system for the instrument head with programmable working positions to support different types of dissolution testing tools.

### Convenient and Sustainable Programs

This PTWS 4000 can also be programmed to start up automatically before the start of the day, so that bath temperature and vessel medium temperature are ready for use first thing in the morning. Similarly, the instrument can be programmed to shut off the heater at night to conserve energy. Direct connection to a PTFC2 or DSR-M fraction collector is also possible for automated sample collection.

### Staggered Start

The standard testing method filing system eases the programming of sampling information. Each of the stirrer shafts can be withdrawn or started in a vessel at any time. This offers the possibility of a staggered start for manual and automated operation. The depth setting of the stirrers can easily be altered to meet the parameters of new tool setting, as is required for transdermal cylinders.



## Advantages

- » Supports larger volumes for highly concentrated formulations
- » Individual vessel centering
- » MonoShaft™ system to avoid re-adjustment of immersion depth after tool exchange
- » IQ/OQ documents included free of charge

## Features

- » Fully USP <711/724> and EP <2.9.3/4> compliant
- » Equipped with 4 liter vessels
- » 6 stirred positions in one row
- » 2 additional unstirred positions for 1 liter vessels
- » Possible to use standard 1 liter vessels with supplied adapter lids

## Standard Scope of Supply

The PTWS 4000 comes ready to use with the following standard scope of supply:

- » 10 rolls of printer paper
- » Comprehensive documentation folder including:
  - › User manual
  - › IQ documentation
  - › OQ documentation
  - › Instrument logbook

## Options

In addition to the standard scope of supply Pharma Test offers a broad range of accessories and options including:

- » Amber colored vessels for UV sensitive test materials
- » Full range of MonoShaft™ stirring tools available
- » Full range of certified validation tools available

## Technical Specifications

| Parameter                        | Specification   |
|----------------------------------|---|
| <b>Display</b>                   | LCD Digital Display (10 x 10 cm illuminated) for RPM, temperature, time, timer and pH (optional) functions  |
| <b>Keyboard</b>                  | Function and alpha-numeric keys   |
| <b>Acoustic signal</b>           | Programmable acoustic signal for operator information   |
| <b>Interface</b>                 | 1 RS-232 port;<br>1 TTL relay port to connect a PTFE 2 Fraction collector and a pump;<br>1 pH-probe port  |
| <b>Printer</b>                   | Connect PT-DL1 data logger to print test log as well as OQ information  |
| <b>Speed control</b>             | Adjustable from 20 rpm - 250 rpm  |
| <b>Accuracy</b>                  | ± 2% of set speed typically < 1%  |
| <b>Temperature control</b>       | 2 off 750 W heaters and 1 pump system, protected against overheating and "no water" operation", adjustable from about 25°C - 50°C, water diffuser for even water distribution all over the bath |
| <b>Accuracy</b>                  | ± 0.3° C inside the water bath  |
| <b>Water circulation</b>         | Water circulated through special diffusion system   |
| <b>pH measurement</b>            | 0.05 - 9.00   |
| <b>Accuracy</b>                  | ± 0.02 pH units   |
| <b>Number of stirred vessels</b> | 8 vessels for buffer / medium   |
| <b>Heat-up</b>                   | Energy saving, programmable, "auto start" heater function   |
| <b>Calibration</b>               | Built-in calibration procedures for speed, temperature control and pH-probe, OQ/PQ sequence programmable including alarm indicator  |
| <b>Stirrer wobble</b>            | Better than 0.3 mm total run out  |
| <b>System tools</b>              | Mono-shaft stirrer design, USP Apparatus 1, 2, 6 tool adapter, cream cell, trans-dermal patch tools - each tool individually coded  |
| <b>Vibration</b>                 | Pump system on vibration-free mounts, water bath on separate platform   |
| <b>Vibration inside vessels</b>  | Less than 0.003 mm displacement   |
| <b>Vessel Centring</b>           | Auto centring inside the bath cover, easily aligned bath using centring tools and stainless steel support dish  |
| <b>Test Vessels</b>              | 4 liter USP vessels   |
| <b>Evaporation</b>               | Low evaporation covers for all vessels, include suitable tool / sampling tube cut outs  |
| <b>Instrument Dimensions</b>     | Approx. 50cm x 55cm x 90cm (width x depth x height)   |
| <b>Packaging Dimensions</b>      | Approx. 50cm x 55cm x 90cm (width x depth x height)   |
| <b>Net / Gross Weight</b>        | Approx. 35 / 50 kg  |
| <b>Certification</b>             | All components certified to USP / EP requirements   |
| <b>CE / EMC Certification</b>    | All CE / EMC certification provided   |
| <b>Validation</b>                | All IQ & OQ documents included  |

We reserve the right to make technical changes without any prior notice.